MATHEMATICS 106
Calculus with Business and Economic Applications

Catalog Description: **MATH 106. Calculus with Business and Economic Applications.** 3-3-0. Functions, intuitive limits, derivatives, applications of the derivative and mathematics of finance. (27.0101)

Prerequisites: C or better in MATH 101 or advanced placement.

Required Text and Other Materials: *Mathematics with Applications* by Lial, Hungerford, and Holcomb; 9th edition; Graphing Calculator (Note that TI 83/84 Plus will be used in classroom demonstrations); Notebook

Student Outcome Objectives:
Upon completion of the course, the student will be able to:

1) Analyze various functions and their graphs
2) Use financial formulae
3) Apply methods of differential calculus to selected problems and their applications

Course Content Outline: (Please note that this is a tentative outline and is subject to change. Students will notified in a timely manner if changes are to be made.)

Part I – Functions

- 3.1 – Functions
- 3.2 – Graphs of Functions
- 3.3 – Applications of Linear Functions
- 3.4 – Quadratic Functions
- 3.5 – Applications of Quadratic Functions
- 3.6 – Polynomial Functions
- 3.7 – Rational Functions
- 4.1 – Exponential Functions
- 4.2 – Applications of Exponential Functions
- 4.3 – Logarithmic Functions
- 4.4 – Logarithmic and Exponential Equations

Test 1 (Date to be announced)

Part II – Differential Calculus

- 11.1 – Limits
- 11.2 – One-Sided Limits and Infinite Limits
- 11.3 – Rates of Change
- 11.4 – Tangent Lines and Derivatives
- 11.5 – Techniques for Finding Derivatives
- 11.6 – Derivatives of Products and Quotients
- 11.7 – The Chain Rule
- 11.8 – Derivatives of Exponential and Logarithmic Functions
- 11.9 – Continuity and Differentiability

Test 2 (Date to be announced)

Part II continued – Differential Calculus

- 12.1 – Derivatives and Graphs
- 12.2 – The Second Derivatives
- 12.3 – Optimization Applications
- 12.4 – Curve Sketching

COMPREHENSIVE FINAL EXAM (Date to be announced)

Course Requirements/Methods of Evaluation:

Grading Scale: 90-100% A 80-89.9% B 70-79.9% C 60-69.9% D Below 60 F

Semester grades:	2 tests	300 pts
	Homework quizzes (no make-ups)	100 pts
	Final Exam (Comprehensive)	200 pts
	Total	600 pts

Note: Homework quizzes will consist of homework problems or homework-type problems. These quizzes will be unannounced but will always be reflective of the most recent homework set. Ten to fifteen homework quizzes will be given and the top ten scores will be part of final course grade tabulation.

MATHEMATICS 106 2T/3T

Calculus with Business and Economic Applications

Fall 2009 Suggested Homework Exercises

Section	*Suggested Exercises
3.1	1-45 odd, 49, 53
3.2	1-19 odd, 23, 27-31 odd, 33-38 all, 47, 53, 57, 59
3.3	1-41 odd, 45-48 all, 49,51
3.4	1-45 odd, 49
3.5	1-19 odd, 23,25
3.6	1, 3, 5-8 all, 15-19 odd, 27,31
3.7	1-13 odd, 17-21 odd, 25, 29
4.1	1-6 all, 13-17 odd, 27-35 odd, 39-45 odd, 49
4.2	1-7 odd, 13, 17
4.3	4-49 odd, 53, 61, 63
4.4	1-17 odd, 23-39 odd, 45-59 odd, 63, 67, 77
11.1	1-7 odd, 11-17 odd, 21-53 odd, 57
11.2	1-61 odd
11.3	1-15 odd, 19-30 all, 31-37
11.4	1-35 odd
11.5	1-57 odd
11.6	1-41 odd
11.7	1-47 odd, 51-59 odd, 63, 65
11.8	1-63 odd, 67, 71, 75
11.9	1-25 odd, 29, 31, 36-40 all
12.1	1-41 odd, 49, 53, 55, 59
12.2	1-17 odd, 21-51 odd, 55-59 odd, 63, 65
12.3	1-25 odd, 31, 35, 39, 45, 47, 49
12.4	1-21 odd, 29

***Please note that this is a list of recommended assignments and other problems may be assigned at different times during the semester.**